

### ABOUT THESE MAPS

Maps a, b and c show the at-sea density (birds/km<sup>2</sup>) of Sabine's Gull (*Xema sabini*) in three ocean seasons – Upwelling, Oceanic, and Davidson Current, displayed in cells of 5' latitude by 5' longitude. Densities are based on the combined data sets of several studies; see the Data and Analyses section of this chapter. The color and mapping intervals were selected to show the most structure and highlight significant areas, while allowing comparisons among marine bird species. Cells that were surveyed but in which no Sabine's Gulls were observed have a density of zero. Areas not surveyed appear white; no information was available for these areas. Blue lines indicate the boundaries of the National Marine Sanctuaries in the study area: Cordell Bank, Gulf of the Farallones and Monterey Bay. Bathymetric contours for the 200 m and 2,000 m isobaths are shown in light blue.

In order to provide an integrated look at the patterns of a species' spatial and temporal occurrence and abundance in the study area, map d shows seasonal high-use areas, displayed in cells of 10' latitude by 10' longitude, and also breeding colonies (when available). The seasonal high use map provides a further synthesis of densities presented in maps a, b and c, and portrays the relative importance of various areas to the species. Areas with consistently high use are highlighted. See the Data and Analyses section of this chapter for further explanation of high-use areas.

### DATA SOURCES AND METHODS

The at-sea data set is referred to as the CDAS central California data set (1980-2001) and was developed using software called Marine Mammal and Seabird Computer Data Analysis System (CDAS), by the R.G. Ford Consulting Co. The data set extends from Pt. Arena to Pt. Sal in the study area, and the surveys used were conducted between 1980 and 2001. See the Data and Analyses section of this chapter for more information on the at-sea survey data sets and methods.

### RESULTS AND DISCUSSION

Sabine's Gull occurs principally in waters over the continental slope and beyond, and mostly outside of National Marine Sanctuary boundaries. Therefore, it occurs over deep waters, far from shore. Surveys in CDAS recorded 595 sightings of 1,652 individuals. It is present only as a migrant

between its nesting area in the Arctic and wintering area in waters off Peru. It migrates north during the Upwelling Season (April-May) and south during the Oceanic Season (August), and is mostly absent during the Davidson Current Season.

Sabine's Gull feeds on a variety of small fish and pelagic invertebrates (e.g., krill) while in the study area. See Tables 3.5, 3.10 and 3.11 for related summary information.